



## COR Structure

**NASA HQ:** Provides programmatic direction and overall guidance to the Program and Project Offices; administers the COR budget; solicits and manages calls for technology development, and makes strategic decisions on technology support and implementation; works with the Chief Scientist to identify, develop, and implement COR science goals; oversees the science and technology content of the program ensuring it remains faithful to its mission statement.

Director of Astrophysics: Paul Hertz  
Deputy Director of Astrophysics: Andrea Razzaghi  
Program Scientists: Mike Garcia and Mario Perez  
Program Executive: John Gagosian

**Program Office:** Reports directly to the Director of Astrophysics; works to identify, develop, and implement COR science goals during all project phases; interfaces with the science community; facilitates future mission development; conducts advanced mission concept studies; supports research; identifies and develops enabling technologies; facilitates international partnerships; supports education and public outreach; interacts on a day-by-day basis with HQ through the Program Executive and Program Scientists.

Program Manager: Mansoor Ahmed  
Program Chief Scientist: Susan Neff  
Program Chief Technologist: Mark Clampin  
Technology Office Manager: Thai Pham

## Upcoming Events

### COPAG Workshop:

**Late Spring 2014**  
NASA Goddard Space Flight Center  
8800 Greenbelt Road  
Greenbelt, MD 20771

For more information, please visit:  
<http://cor.gsfc.nasa.gov/copag/>

### Next Hubble Fellows Symposium:

**March 10-12, 2014**  
Space Telescope Science Institute  
3700 San Martin Drive  
Baltimore, MD 21218 USA

For more information, please visit:  
<http://www.stsci.edu/institute/conference/fellows13>

### Astrophysics Research and Analysis and Strategic Astrophysics Technology:

Proposals due March 21, 2014  
<http://nspires.nasaprs.com>

## Cosmic Origins (COR) Program

### How did we get here?

The Cosmic Origins (COR) Program seeks to understand the many phenomena and processes associated with galaxy, stellar, and planetary system formation and evolution from the earliest epochs to today. COR supports a vibrant program in both observational and theoretical research, and technology development for future missions.

The COR Program Analysis Group (COPAG) provides input to the program through the NASA Advisory Committee structure, and includes all interested members of the community. For more information visit: <http://cor.gsfc.nasa.gov/> or <http://cor.gsfc.nasa.gov/copag/>



## Science Themes:

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The Cosmic Origins (COR) program looks back to the root of our cosmic origins to find the very first objects to form in the history of the Universe; moves forward in time through the epoch of reionization, capturing the record of galaxy formation through mergers and black hole growth; and continues into the present with the death of old stars and formation of new stars in our own cosmic neighborhood.

COR maps directly into one of the three Science Objectives identified by the 2010 Decadal Survey, Cosmic Dawn: Searching for the First Stars, Galaxies, and Black Holes.

### COR science objectives include:

Understanding when the first stars in the Universe formed, and how they influenced the environments around them;

Discovering how dark matter—pervasive, mysterious and not at all understood—clumps up over time, pulling gas along with it into galaxies;

Seeing galaxies evolve from the first systems to those we observe today, such as the Milky Way, in which we live;

Determining how supermassive black holes formed in the early Universe and how they have affected the lives of galaxies in which they reside;

Learning the mechanisms by which stars, and the planetary systems that frequently accompany them, formed.

## The Hubble Fellowship:

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COR supports research investigations—theoretical, observational, and instrumental—in science areas closely related to the program themes through Fellowships to young scientists—three years or fewer following the date on which the Ph. D. was conferred.

Scientists apply from institutions worldwide to work in U.S.-based institutions. About 10–15 Fellows are peer-selected each year for a Fellowship tenure of 3 years each.

For more information, e-mail [hfinquiry@stsci.edu](mailto:hfinquiry@stsci.edu) or visit:  
<http://www.stsci.edu/institute/smo/fellowships/hubble/>

## How to Get Involved:

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Program Analysis Groups (PAGs) provide community input to NASA.

- PAGs coordinate input from all interested scientists and technologists from the broad community. Everyone is invited to participate in the PAGs' public meetings and to contribute to the discussion.
- PAGs conduct trade studies via their Study Analysis Groups. These are used as guidelines by NASA to plan for future investments. Your input matters to NASA!
- COPAG: <http://cor.gsfc.nasa.gov/copag/>
- Physics of the Cosmos PAG: <http://pcos.gsfc.nasa.gov/physpag/>
- Exoplanet PAG: <http://exep.jpl.nasa.gov/exopag/>

## COPAG:

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### Executive Committee

Coordinates the COPAG activities; organizes regular meetings; collates input from the Science Analysis Groups (SAGs) to be transmitted to NASA via the NAC's Astrophysics subcommittee.

- Kenneth Sembach (Chair, 2013 - 2016)
- Daniela Calzetti
- Julianne Dalcanton
- Dennis Ebbets
- James Green
- Sara Heap
- Lynne Hillenbrand
- David Leisawitz
- James Lowenthal
- Paul Scowen

### COPAG Science Analysis Groups (SAG) and Science Interest Groups (SIG):

**SAG #1\*** Science objectives for a 4m-8m UV/Visible mission.

**SAG #2\*** Technologies for a 4m-class monolithic telescope UV/Visible mission with an internal coronagraph

**SAG #3\*** Technologies for an 8m-class segmented telescope UV/Visible mission with an external occulter.

**SAG #4:** Technologies for a future far-IR mission

**SAG #5:** Science Objectives and Technology Requirements for a series of Cosmic Origins Probes

**SAG #6:** Cosmic Origins Science Enabled by the WFIRST-AFTA Coronagraph

**SAG #7:** Science Enabled by Operations Overlap of HST and JWST

**SAG #8:** Science Enabled by the WFIRST - AFTA Data Archive

**SIG #1:** Far Infrared Science and Technology

\*Retired